

What Is Claimed Is:

1 1. In a steam on demand generator comprising a cup assembly, a  
2 heating device for heating the cup assembly and an interior  
3 thereof, a water injection device for supplying water to the cup  
4 assembly, a steam outlet, and a temperature sensor positioned  
5 within the cup assembly, wherein water is supplied in quantities  
6 so that the interior of the cup assembly remains essentially dry  
7 during steam generation, the improvement comprising the cup  
8 assembly including a thin-walled stainless steel cup and  
9 stainless steel cap forming the interior and a hollow cone spray  
10 nozzle in the stainless steel cap for supplying water to the cup,  
11 wherein the heating device and an end portion of the temperature  
12 sensor are brazed to the stainless steel cup.

1 2. The steam on demand generator of claim 1, wherein end  
2 portion of the temperature sensor is brazed at a location on an  
3 inside wall of the stainless steel cup, the inside wall receiving  
4 spray from the hollow cone spray nozzle.

1 3. The steam on demand generator of claim 2, wherein the  
2 temperature sensor is a thermocouple and at least a side of a tip  
3 of the thermocouple directly contacts the inside wall, and a tip  
4 end surface remains exposed after brazing.

1 4. The steam on demand generator of claim 1, wherein the cup  
2 has a wall configured to receive spray from the hollow cone spray  
3 nozzle and to receive the temperature sensor.

1 5. The steam on demand generator of claim 2, wherein the  
2 heating device is a heating coil that surrounds a lower portion  
3 of the cup assembly, the lower portion including the inside wall.

1 6. The steam on generator of claim 1, further comprising a  
2 stainless steel stud brazed to a bottom of the stainless steel  
3 cup, the stud providing a channel for the temperature sensor to  
4 enter the interior.

1 7. The steam on demand generator of claim 6, wherein the  
2 temperature sensor is brazed to portion of the stud.

1 8. In a method of producing steam on demand using a steam  
2 generator having a heating device, wherein water is dispensed  
3 into a cup of the steam generator in pulses to generate steam on  
4 demand while maintaining the steam generator essentially dry  
5 during steam generation, injection of water controlled by sensing  
6 a temperature of an interior of the steam generator and the cup,  
7 the improvement comprising dispensing the water in a hollow cone  
8 spray pattern with the cone of atomized water contacting a wall  
9 of a stainless steel cup, and sensing the interior temperature

10 and temperature of the cup using a temperature sensor placed on a  
11 portion of the wall receiving the dispensed water.

1 9. The method of claim 8, wherein the temperature sensor is a  
2 thermocouple.

1 10. The method of claim 8, wherein an end portion of the  
2 temperature sensor is brazed to the wall with an end face of the  
3 end portion exposed after brazing.

1 11. The method of claim 8, wherein the heating device is a  
2 heating coil that is brazed to an outside portion of the  
3 stainless steel cup.

1 12. The method of claim 8, wherein a change of temperature  
2 sensed by the temperature sensor over time is used to control  
3 steam generation.

1 13. A cup and cap assembly for a steam generator comprising:

2 a) a cap having an opening for water dispensing;

3 b) a cup;

4 c) a clamp assembly securing the cap to the cup to form a  
5 sealed interior;

6 d) a heating element brazed to the cup; and

7 e) a temperature sensor, a temperature sensing end portion  
8 positioned in the interior and brazed to a portion of a wall of  
9 the cup;

10           f) wherein at least the cap, the cup, and clamp assembly are  
11 stainless steel.

1   14.   The cup and cap assembly of claim 13, wherein the heating  
2 device is a heating coil.

1   15.   The cup and cap assembly of claim 13, wherein the cup  
2 includes a stainless steel stud brazed to a bottom portion  
3 thereof, the stud providing a channel for passage of the  
4 temperature sensor into the cup.

1   16.   The cup and cap assembly of claim 13, further comprising a  
2 hollow cone spray nozzle positioned in the cap and orientated to  
3 direct a hollow cone of water onto the wall of the cup, including  
4 the portion with the temperature sensor brazed thereto.

1   17.   The cup and cap assembly of claim 13, wherein the cup has a  
2 thin-walled construction.